

CLAIMS

1. Transmission brake (1) having one housing (13), at least one friction element (4) fastened on a transmission shaft (3) to be braked and at least one friction element (5) non-rotatably situated in relation to said housing (13), the same as one fastening device by which one fastening element can be axially pressed against said friction elements (4, 5), characterized in that the fastening element (8) can be moved by way of an electromagnetic actuation device.

2. Transmission brake according to claim 1, characterized in that the fastening device comprises one electromagnetically acting toroidal coil (6, 7) which can be supplied with regulated coil current via a pulse width modulated voltage generated by a control line and regulation device (16) and one driver stage (18) which can be supplied with a regulated coil current.

3. Transmission brake according to claim 2, characterized in that instead of one toroidal coil (6, 7) several separate coils (6, 7) are disposed, preferably forming a circle, in the housing (13) of the transmission brake (1).

4. Transmission brake according to claim 1, 2, or 3, characterized in that the transmission brake (1) is integrated at least partly in a transmission housing wall (2).

5. Transmission brake according to claim 4, characterized in that the toroidal coil (6, 7) is situated in a half-shell housing (13) of the transmission brake (1) which by its open side is fastened on the transmission housing (2).

6. Transmission brake according to at least one of the preceding claims, characterized in that the friction element (4) is axially movably situated upon the transmission shaft (3) and the friction element (5) on the transmission housing (2).

7. Transmission brake according to claim 6, characterized in that the friction elements (4) are situated upon an outer plug-in toothing (10) of the transmission shaft (3).

8. Transmission brake according to claim 7, characterized in that the friction element (5) is situated upon an inner plug-in toothing (11) on one aperture in the transmission housing wall (2).

9. Transmission brake according to at least one of the preceding claims, characterized in that the friction elements (4, 5) are designed as brake discs.

10. Transmission brake according to claim 9, characterized in that the surface of the friction elements (4, 5) is corrugated, preferably sinusoidally corrugated.

11. Transmission brake according to at least one of the preceding claims, characterized in that one armature (8) is non-rotatably and axially movably situated upon the outer plug-in toothing (10) of the transmission shaft (3) and/or the inner plug-in toothing (11) of the transmission housing wall (2).

12. Transmission brake according to claim 11, characterized in that the armature (8) is designed as ring armature.

13. Transmission brake according to at least one of the preceding claims, characterized in that the friction elements (4, 5) on the transmission housing (2) and on the transmission shaft (3), under the action of the magnetic forces generatable by the toroidal coils (6, 7), can be pressed by the armature (8) in direction to a stop face (14) fixed to the housing in the area of the toroidal coils (6, 7), preferably on the transmission brake housing (13).

14. Transmission brake according to at least one of the preceding claims, characterized in that the transmission shaft (3) is a countershaft of an automatic or automated mechanical transmission.

15. Transmission brake according to at least one of the preceding claims, characterized in that the control and regulation device (16) is designed so that therewith variable brake gradients can be adjusted on the transmission brake (1).

16. Transmission brake according to at least one of the preceding claims, characterized in that the control and regulation device (16) is designed so that therewith the transmission brake can be operated as a vibration damper, preferably as a torsional vibration damper, in a drive train.